

What is claimed is:

1. A bonding device for bonding an object to be bonded under pressure to a surface to be bonded by allowing a load and vibration to act on the object to be bonded, the bonding device comprising:

a bonding tool, abutting on the object to be bonded;

and

a pressing unit, pressing the bonding tool to the object to be bonded;

wherein the bonding tool includes:

a traverse elongated horn;

a vibrator, applying a longitudinal vibration to the horn in a first direction along the longitudinal direction of the horn;

a protruding part, protruding from the horn in a second direction substantially perpendicular to the first direction;

a bonding operation part, provided in the end part of the protruding part to abut on the object to be bonded; and

a heating unit, inserted into a mounting hole provided in the horn; and

wherein the heating unit is mounted into the mounting hole with a space maintained from the inner surface of

the mounting hole.

2. The bonding device according to claim 1, wherein a vent part is provided for preventing the transfer of heat to the vibrator in the horn between the vibrator and the bonding operation part.

3. The bonding device according to claim 2, wherein the vent part is a traverse elongated slit in the first direction.

4. The bonding device according to claim 1, wherein the heating unit is provided in a part corresponding to an antinode of the vibration of the horn.

5. The bonding tool for bonding an object to be bonded under pressure to a surface to be bonded by allowing a load and vibration to act on the object to be bonded, the bonding tool comprising:

a traverse elongated horn;,  
a vibrator, applying a longitudinal vibration to the horn in a first direction along the longitudinal direction of the horn;

a protruding part, protruding from the horn in a second direction substantially perpendicular to the first

direction;

a bonding operation part, provided in the end part of the protruding part to abut on the object to be bonded; and

a heating unit, inserted into a mounting hole provided in the horn;

wherein the heating unit is mounted into the mounting hole with a space maintained from the inner surface of the mounting hole.

6. The bonding tool according to claim 5, wherein a vent part is provided for preventing the transfer of heat to the vibrator in the horn between the vibrator and the bonding operation part.

7. The bonding tool according to claim 6, wherein the vent part is a traverse elongated slit in the first direction.

8. The bonding tool according to claim 5, wherein the heating unit is provided in a part corresponding to a antinode of the vibration of the horn.

9. The bonding tool for bonding an object to be bonded under pressure to a surface to be bonded by allowing a

load and vibration to act on the object to be bonded,  
the bonding tool comprising:

a traverse elongated horn;

a vibrator, applying a longitudinal vibration to the  
horn in a first direction along the longitudinal  
direction of the horn;

a protruding part, protruding from the horn in a second  
direction substantially perpendicular to the first  
direction;

a bonding operation part, provided in the end part  
of the protruding part to abut on the object to be bonded  
and;

a rod shaped heating unit, inserted into the first  
direction of the horn.

10. The bonding tool according to claim 9, wherein a  
vent part is provided for preventing the transfer of heat  
to the vibrator in the horn between the vibrator and the  
bonding operation part.

11. The bonding tool according to claim 10, wherein the  
vent part is a traverse elongated slit in the first  
direction.

12. The bonding tool according to claim 9, wherein the

heating unit is provided in a part corresponding to an antinode of the vibration of the horn.